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## BASES OF VALUATION IN THE CONTROL OF RETURN ON PUBLIC UTILITY INVESTMENTS

The question as to what constitutes fair value in rate regulation or, more specifically, in the control of return on public utility investments has been extensively discussed in recent years; and while doubtless progress has been made in clearing up the matter, we are still in confusion. One difficulty has been a lack of clear distinction between the different bases of valuation that might be or have been used. Especially has this been true of the discussion relating to "actual cost" as opposed to "reproduction cost." As will appear, there are several "actual cost" concepts, and writers commonly pass from one to the other without consciousness of the fact. Elements of one concept are frequently transferred to another to which they do not consistently belong. This applies particularly to depreciation, going value, and the various so-called intangible costs. It seems worth while, therefore, to attempt a clear separation of ideas, and briefly to test each as to its usefulness in the determination of fair value.

The question is raised here whether the time has not come for making a definite selection, through legislative action, of a clear single basis of valuation to be applied to all cases involving the control of return on public utility investments. The basis adopted should, of course, be chosen upon the broad grounds of social expediency. What we wish is effective regulation for the general welfare. The test for our selection, therefore, should not be the commercial one of market value, but the social-ethical one of justice or reasonableness. But what is reasonable? That is what needs to be clearly defined. The decision must finally rest upon our sense of propriety and our view of the common good.

More specifically, it seems that the basis selected should be judged principally by the following five standards: (1) It should be definite and clear, so that it can be easily understood; (2) it should be simple, so that it can be readily applied; (3) it should not break violently with present legal standards, although these are unsettled and the rule itself is to be adopted to clear up present uncertainty; (4) it should have regard for what the investors reasonably expected when they put their capital into the business; (5) it should not sacrifice the general welfare through narrow regard for individual justice or claims.

These are all matters more or less indefinite, but, it seems,

if we are to get anywhere with regulation we must reach a definite decision. We should consider the various factors reasonably, and then select a single rule and apply it to all cases. If we attempt to determine the valuation in each case according to the particular circumstances, having fine regard for individual claims, we shall render regulation impracticable and defeat the broader claims of justice. The commissions would be overwhelmed with the details of individual cases, as they now are, and regulation would never be anything but a spasmodic and indefinite procedure. The terms governing the use of private capital in the public service should be clearly defined, so that investors as well as the public may know where they stand.<sup>1</sup>

## I

The different bases of valuation that come within the limits of our discussion fall into two general classes: (1) investors' sacrifice concepts and (2) property appraisal concepts. The standpoint of the first is that of investors in utilities; and of the second, that of physical property used in service. This distinction is fundamental, though it is usually overlooked in valuation discussions. The first concepts are based upon historical facts, while the second are concerned only with existing plant and property used in the business. In carrying out this distinction we may make the following classification:<sup>2</sup>

<sup>1</sup>To the writer it seems that, while regulation by the method of public rate making has been and is bound to be unsatisfactory, the control of return on investments should not be given up, but that it should rather be made definite and fixed. The following procedure is suggested: (1) a clear valuation policy adopted through legislative action; (2) a valuation made of all existing investments; (3) the result in any case taken upon the books of the company, and then a definite rate of return allowed on the amount and no more; (4) on new investments, the return based on actual investment at the rate involved in the issue of securities; (5) service rates freely enough fixed, with the coöperation of the commission, so that the stipulated return may be reasonably obtained; (6) any excess profits above the fixed return to investors, to go to the city, state, or federal government, in the form of a special franchise payment. See articles by the writer, *Political Science Quarterly*, vol. XXX, pp. 106 ff.; vol. XXX, pp. 254 ff.; vol. XXXI, pp. 260 ff.; also *Electric Railway Journal*, March 11, 1916.

<sup>2</sup>From an accounting analogy, the appraisal concepts correspond to the asset side of the balance sheet, and the investors' sacrifice to the liability side. The assets represent concrete physical things, while the items on the liability side indicate source of, or rights over, the assets; the first indicate things, and the second, the investors' relation to the things.

*Investors' sacrifice:*

1. Cash or equivalent put into the business through the issue of securities. This is the *primary sacrifice*.

2. The same as 1, plus the amount of earnings reinvested. This may be called the *direct sacrifice*.

3. The same as 2, with additions or subtractions on account of past excess or deficiency in return to investors. The best measure, as shown later, is the primary sacrifice plus accumulated deficiency in return or minus accumulated excess. This is the *net total sacrifice*.

*Appraisal concepts:*

1. The existing property in service at present prices of materials and labor—*gross reproduction cost*.

2. The same as 1, with deduction for depreciation, taking account of the physical state of the property—*net reproduction cost*.

3. The existing property appraised at prices paid **at the time** of installation of the different units. This is usually termed *actual cost*, but may be more distinctively called *gross installation cost*.

4. The same as 3, with deduction for depreciation, termed *net installation cost*.

The above are the different concepts that have received more or less consideration in valuation discussions, and they should be clearly defined and compared as to their serviceability for valuation purposes. There are several other ideas which have some importance and may be briefly reviewed. Among the investors' sacrifice concepts are the par value of securities outstanding and the market value of the same, while among the property concepts are the book value of the assets, and appraisal of the property as a going concern. None of these deserves serious consideration. The par value of the securities outstanding and the book value of the property would often be practically equivalent amounts and obviously would not furnish a reasonable basis of valuation. In many cases they would give absurdly large results, because of securities issued and charged to property account without any actual investment. The market value of securities and the appraisal of the property as a going concern would usually result in about the same amount; these bases could not be used because they would involve the profitableness

of the enterprise and would result in capitalizing permanently against the public all existing high rates. In a business where monopoly is permitted, the capitalization of monopoly prices for the investors as against the public can not well be allowed.

Another appraisal concept, which has been given considerable attention by engineering writers, is the cost of reproduction, gross and net, not of the existing property in a case but of a plant economically the most efficient to provide the required service. The idea involved is that a community is entitled to the most economical service available, and should pay the cost of such service. This sounds reasonable, but in practice does not prove to be a workable idea. The factors in such a valuation would be all hypothetical; the inventory of the existing property could not be used; and it would be difficult to determine what would be the economical plant. Moreover, if the valuation were high because of the assumed efficiency, the return would be high without the public's actually receiving the ideal service. It is the actual plant with which we have to deal and not a hypothetical one. If any parts are obsolete or unsuited to their purpose, allowance can be made in the appraisal.

## II

We shall now take up the investors' sacrifice concepts, defining them in more detail and considering their suitableness for rate regulation and the control of return on investment. It may be stated here that while for practical reasons an appraisal method will have to be adopted, nevertheless, among the principal tests of reasonableness, is bound to be the idea of sacrifice on the part of the investors. After all, we can not get away from the idea of sacrifice as the basis on which the public should pay for service. This fact will come out more clearly in the appraisal discussion. But while the sacrifice concepts can not well be employed in direct valuation, they must be considered in the selection of the best appraisal idea.

*Primary sacrifice.* This is the amount of cash or its equivalent put into the business through the issue of securities. It is a simple standard that requires no special examination. As an idea, however, it is frequently confused with appraisal at actual cost, though they are distinct. In a sense this is the actual cost of the business, and has considerable merit as a valuation standard. It is simple and in most cases could be easily applied. Usually

the facts could be readily ascertained and a proper determination made. The cash issues would furnish little difficulty; but the evaluation of securities issued for promotion or for services and construction would have to be somewhat arbitrarily fixed. Altogether, however, the valuation could be made with less difficulty and expense and with nearer approach to accuracy than by any other method.

The fundamental objection to the method is that it would have no regard for reinvestment of earnings. It would consider only the primary sacrifice, whereas the bulk of the property may have been built up out of secondary or indirect sacrifices. The result, therefore, would be that individual concerns with essentially the same history would be assigned greatly different amounts as the basis of future return. Assume two companies which have had closely parallel records of construction, development of business, and profits from operation; and that the one has regularly left a large share of the profits in the business, while the other has paid them all out as dividends. In the first case, therefore, a large proportion of the extensions and improvements have been made out of surplus, while in the second the funds have all been provided through the issue of securities. Or in the first, no formal profits were reinvested, but many proper construction charges were made to operating expenses; thus again improvements were financed out of current funds and really a hidden surplus was created, while in the second case, new security issues were made.

It would seem unreasonable to grant the second company the larger valuation merely because of the greater par value of capital obligations outstanding. The real sacrifices in the two cases were essentially the same: in the one case profits were left in the business when they might have been taken out; they represent investors' sacrifice no less than if funds had been paid out as dividends and had then been returned through the issue of new securities. To grant the second company a larger valuation for future return would be to take appearance for substance. This would be a departure from present legal standards, indefinite though they are, and would scarcely conform to our sense of reason and justice. Undoubtedly, when past profits were left in the business, the investors fairly believed that they would be permitted to obtain a future return upon them.

*Direct sacrifice.* This basis consists of the cash or equivalent

put into the business through the issue of securities, plus reinvested earnings. It provides the adjustment for the lack of which the primary sacrifice method should be rejected. The title, direct sacrifice, may be somewhat misleading, for the concept includes not only what might be called the direct sacrifice through the issue of stocks and bonds but also the indirect sacrifice involved in the putting of profits back into the business. But even the latter process may well be considered as a direct investment, so that for the purpose of clear distinction we may pardonably include both the issue of securities and the reinvestment of earnings under the title suggested.

This standard would probably correspond more nearly to our sense of justice and would meet more directly the reasonable expectations of investors, than would any other method that might be selected. If there had been proper accounting throughout, the investment would be shown by the funded and other long-term debt, the capital stock, and surplus accounts, with adjustments for premiums or discounts on the securities, and would be clearly stated in the balance sheet of the company. It would correspond to the idea of capital as used in the accounting sense. It would not only represent the sacrifice made by investors but would be equal to the cost to the company of all the property in service and carried in the accounts.<sup>3</sup> Moreover, it would be substantially the same basis that would best be employed in the control of future investments.

In so far as any clear obligations have been established on the part of the public to the investors, it would seem that when the latter turned their capital over to the public service, all they could reasonably have expected was a fair return on the amount then provided, and subsequently a fair return also on reinvested profits. The public, on the other hand, should have expected to pay such returns, or it would not have had the capital placed at its service. May we not, therefore, fairly assume, for the sake of establishing definite regulation, that there was such a tacit agreement between the public and investors, and that the investors' present equities may be determined on the ground of that understanding?

The difficulty with this method is the practical one of application. If the accounts had been properly kept, the task of valuation

\* It would be equal to the sum of the plant and other asset accounts less the depreciation reserve and all strictly current liabilities and operating reserves.

tion would be very simple, for the amount could be taken directly from the books of the companies. But not much reliance can be placed upon book records. As is generally known, securities originally issued may have represented very little actual investment, although in the mass of cases a reasonable adjustment could probably be made. The greater difficulty appears in the inadequate or unreliable operating accounts during the life of the company. It has been a common practice, after the initial liberal issue of securities, to charge all possible construction and improvements to operating expenses; thus real investment would be made without being shown in the accounts. On the other hand, it has probably been no less common to charge proper operating expenses to construction, so that profits would be overstated, income really taken out of capital, and the investment not maintained. And often the same company charged proper construction costs to operating expenses and included many operating items in the construction account.

If, therefore, we were to adopt the method of direct sacrifice as the valuation standard, we should be compelled to reconstruct the accounts of each company for its entire history. This would be an exceedingly difficult thing to do even under the most favorable circumstances. Frequently, past records, especially those antedating commission control, would be so incomplete that reconstruction would amount to invention. It would seem, therefore, that while direct sacrifice appears to be a just standard of valuation, practically it is unworkable.

*Net total sacrifice.* This would provide adjustment of the direct sacrifice on account of past deficiency or excess of fair earnings. It is based on the idea that from the first the investors had an absolute right to a fair return on their sacrifice and no more. Any deficiency in past return should therefore be added to the valuation while any excess should be subtracted. The analysis would cover the entire history of the company, and the final result to date would give the net total sacrifice of the investors. Compound interest allowance equal to the assumed fair rate of return would be included in the valuation.

The calculation may be made in two ways: (1) it may consider the annual net earnings as the return obtained by the investors;<sup>4</sup> or (2) it may treat the interest and dividends actually paid

<sup>4</sup>This would be equal to the sum of the operating revenues less all operating expenses and taxes.



as the return. According to the first view, the calculation would depend on the completeness of the current operating accounts. It would proceed as follows: The first year's investment through the issue of securities, plus the year's reinvested earnings, plus deficiency of total net earnings compared with a reasonable return (or minus excess earnings), would equal the net total investment at the beginning of the second year. This amount, plus the second year's reinvested earnings, plus the deficiency or less the excess, would give the valuation for the beginning of the third year. Any new investments through the issue of securities would have to be added to the amount. In this way the calculation would have to be carried through every year of the company's history to the time of the valuation. The result would be the net total sacrifice, on which the future return would be based.

The difficulty with this method of calculation is that it would depend on the completeness of past operating records. If they were incomplete, as they frequently are, the valuation would become correspondingly hypothetical. For this reason the second method is better, treating the cash actually paid to investors as the return realized. This, after all, is the actual income obtained from the investment. The amounts in question could usually be readily determined even if the past operating accounts were incomplete. Moreover, the calculation would be simpler, and would proceed as follows: The first year's investment through the issue of securities, plus the deficiency in return (interest and dividends paid as compared with the assumed fair return) or less the excess, would equal the investment at the beginning of the second year. This amount, plus the deficiency or minus the excess, and plus new investment, would be the amount at the beginning of the third year. In the same way the calculation would be brought down through the history of the company to the date of the valuation. The total net sacrifice shown would be the same as by the first method.

In a sense, the net total sacrifice appears to be an ideal method of valuation. It proceeds vigorously with the idea that the investors have been entitled to a fair return and no more. Any excess return is considered as a withdrawal of capital, and any deficiency as an addition. The final amount is the total sacrifice incurred, for which the public should be responsible.

Doubtless if this idea had been clearly established in the past we should be saved the present confusion in regulation. It

might well be applied to the future if the existing tangle can once be straightened out. But as to the past, covering all present investment, while we have undoubtedly had the right to limit the return strictly to the total sacrifice, we have never clearly asserted the right, and in the absence of an established policy we can not very well assume that it has been in force all along and should now be rigorously exercised. The law has been loose. The distinction between private and quasi-public enterprises has not been very clear. Even for future investments the standard of total net sacrifice could be established only by sweeping legislation. Past court decisions can scarcely be interpreted as placing such a limitation on existing properties.

The first general criticism of the method, therefore, is that it would break too violently with present law and our present notions as to public utility enterprises. While the law and our ideas have been indefinite, nevertheless we should scarcely subscribe to the view that past profitableness at service rates permitted by the law could now be treated as diminishing present property rights. If the excess profits have been reinvested in the business, are they not according to our prevailing views just as much property rights as if investment had been made through the issue of securities? But if the excess has been paid out as dividends to stockholders, can we think of the amount as a reasonable deduction from the primary investment through the issue of securities? Does the total net sacrifice view correspond with our notions of justice?

In the same way, we may ask whether the addition to investment on account of past losses or deficiency in return corresponds to our notion of property rights. The courts have said consistently that it is the value of the property upon which the return should be based. Of course, what is meant by value is not clear. But can it be that losses and lack of return would be viewed as such? To this, it is true, the answer does not seem to be as certain as to the question of deduction from investment on account of excessive returns. The New York law clearly allows past deficiency to be added to the valuation; the same appears to be true in Wisconsin; a number of commissions and courts in other states have used expressions that might be interpreted to follow the New York rule. The addition would be treated as "going value." But this procedure is by no means generally

recognized throughout the country. The New York decision came as a surprise, and the Wisconsin position has been severely criticised. In so far as the addition is accepted in law, it is a recent development applied retroactively to past conditions. It is chiefly court-made law and seems to be based on a lack of comprehensive understanding of the problems involved.

It should be pointed out that while the New York law proposes to add to the investment on account of past losses and deficiency in return, it does not deduct excessive profits. Unless the adjustment for past return be made consistently either way, does it seem reasonable that it should be applied only so as to favor and never to penalize investors?<sup>5</sup>

Does not the question of justice really hinge on the point whether the investors, as the law has stood, could reasonably have expected operating losses to be added to their capital? Certainly they did not suppose that profits would be deducted. Should they not have expected that additions and subtractions would follow the same principle? If no deductions, why any additions?

But since the law has been unclear, and it should be made clear, we must be guided by what seems reasonable under the confused circumstances. If past earnings are to be considered in the valuation, should they not be treated consistently whether they result in subtraction from or addition to the primary valuation? If so, then we face the question whether the rule is reasonably workable at all. As a matter of fact, would it be practicable to subtract from the investment all excessive profits? In the average case there would be no difficulty, for presumably only fair returns have been obtained. But many companies which have huge profits have paid them out as dividends. Consequently they would have their investment greatly diminished or wiped out altogether. In not a few cases there would be even a liability in favor of the public. Practically, could we realize on the liability? Could we even seriously cut into the valuation when

<sup>5</sup> See the writer's article, "Going Value in the Appraisal of Public Properties," *Political Science Quarterly*, vol. XXX, pp. 463 ff.

The basic valuation in New York is a physical appraisal presumably at reproduction cost less depreciation; if the result is less than the total net sacrifice to the investors, the difference is added as going value; if it is equal or greater, it is permitted to stand undiminished whatever the past profits, but no special going value above the appraisal is allowed.

such deductions had not been expected? We should be confiscating many interests, and are we prepared to face the probable resulting confusion?

If we can not practically treat excessive profits as withdrawal of capital, we come back to the question, Does it seem reasonable to consider the deficiencies as additions? Our sense of reasonableness must control; the matter can not be determined by mathematical formula. We should remember, however, that in many cases we could not make up completely for past losses, unless we were to meet them through direct payments from the public treasury. Many companies have been unprofitable simply because of their poorly located properties. This condition would not be changed by the method of valuation. In such cases, even if the losses were added to capital, the amount would be merely a book figure, for the rates could not be made high enough to bring a return on the total net sacrifice involved. There have been many ill-judged ventures which have always been operated at a loss and can never be made reasonably profitable. If we attempt to underwrite the loss, we can not do it through high service rates; and are we willing to use direct public funds for the purpose? If not, then the addition to the valuation would meet only moderate past losses; the serious ones would still rest upon the investors.

We must remember also that there has been very little real regulation in the past. For the most part, companies have been free to charge such rates as could be fixed under the particular circumstances. There has been practically no regard for the cost of service. The principle of rate making has been what the traffic would bear, and companies have made all the profit they could. If now we wish really to regulate and to adopt a rule of valuation for the purpose, and if we can not very well subtract all past excessive returns from the primary valuation, then why add losses or deficiencies in return? Why not draw a curtain on all past returns, except as in a general way they may affect our judgment of the proper standard to be selected? So far as individual cases are concerned, what investors made or lost we can not now very well change.

### III

We now come to the appraisal concepts. As already explained, here we disregard investors' sacrifice and look simply

upon the concrete physical property that is employed in the public service. An inventory is made of all property and then each item is valued according to the particular standard employed.

*Gross reproduction cost.* This represents an appraisal made at present prices of materials and labor. The result is the so-called tangible property. Then various additions are made for intangible items—costs that would be incurred if the property were to be built new. The usual items are: organization expenses; taxes, interest, and injuries during construction; and legal and engineering expenses connected with construction.

Gross reproduction cost is the standard of valuation which corporations are demanding. It is supported by many engineers and by some accountants and economists. Under present high prices it would probably give corporations the largest valuation that could be obtained through any single basis. This is especially true if certain elements are allowed which need not necessarily form a part of the method. Thus, companies claim a return upon the reproduction cost of property installed by the public; upon land and other grants made by the public for the sake of obtaining the service; for going value covering past deficiency in return; and for property retired in the past because of changes in the business.

None of these special items strictly belongs to the reproduction method of valuation; least of all, going value, whether viewed as the accumulated deficiency in return or as special value due to a property which has an established and connected business. Nor can physical property retired in the past logically be included in a present inventory. If these items were counted, it would be on the ground of past sacrifice and not appraisal of present property. Public investments need not be treated as private property. Land given to a company should properly be excluded from the inventory, as should all public construction, such as paving of streets, grading, etc. In case of money grants, the amount might be deducted from the completed appraisal. But all these items are claimed by companies to be included in the reproduction valuation.

The general objection against gross reproduction cost is that an amount would be included which the investors could not reasonably have expected. Because of present high prices, reproduction cost would be much greater than the direct sacrifice incurred

by investors; this is especially true of the older properties. The question is, Upon what amount did the investors expect to get a return? What was the implied contract between them and the public? Can there really be much doubt in the matter? Of course, here we come back to investors' sacrifice; not, however, for the purpose of determining elements for a physical appraisal, but of getting a broad view of justice. Whatever basis be selected, its expediency is bound to rest largely on the reasonable expectation of investors. We must consider the inducement or the implied consideration that led them to put capital into public enterprises.

For street railways, electric light and power companies, and gas companies, the gross reproduction cost would probably not be much greater than the cost of the existing property as it was installed. But in the case of steam railroads and perhaps interurban electric railways the question whether to apply to the inventory present or installation prices assumes tremendous importance. It is common knowledge that through the country as a whole very little was paid by the companies for right of way. The land was either received outright as a gift or was acquired at farm land prices. But now, with land values greatly advanced, the addition to the original cost would amount to tremendous sums. The question then is, When the investors put their money into the business, in so far as they realized the public nature of the enterprise, did they reasonably expect to be permitted a return on the increased values? Does it not seem more reasonable to assume that they expected a return upon their actual investment or sacrifice? Their money was sunk into property which was definitely devoted to a single purpose. Its use could not be affected whatever change in land values might come about. It could not be sold for other purposes, so that the advances could not be realized through sale. Suppose prices had fallen: would the investors have been likely to admit as just a return restricted to the reduced valuation? May we reasonably assume that the prospect of return allowed on the future values of land given to the companies was really one of the inducements that led investors to put capital into the business? If so, then of course it would be only just to permit a return now on the increased values. But it seems more likely that it was this: Land or money grants did make a fair return on investors' sacrifice more probable, but the inducement that

really led to the investment was return on the actual sacrifice. From this standpoint, we may look upon the land or money grants as public investments on which the returns were to be taken in terms of general social development. There is no clear reason why they should be viewed as outright gifts to private individuals.

A second criticism against gross reproduction cost is that no allowance would be made for the physical state of the property. The inventory should include only property in service, but just when and why a unit of plant or equipment should be retired is often difficult to determine. If no allowance were made for physical condition, quantities of practically worthless objects could be incorporated in the inventory and the valuation could be greatly padded against the public. Further, no distinction would be made between well-maintained and run-down property, or between efficient up-to-date plant and that which is obsolete or inadequate for its purpose.

*Net reproduction cost.* The points in the preceding paragraph bring us to the second appraisal concept, gross reproduction cost less the accrued depreciation of the existing properties, or net reproduction cost. Accrued depreciation would include deductions not only on account of natural wear and tear of the property but also for obsolescence and inadequacy.

Net reproduction cost has been used more extensively in rate cases than any other method and has usually received the approval of the courts. It corresponds more nearly to value as understood in unregulated competitive business and would be substantially equivalent to the selling price of the total individual units of the property if a free general market were assumed.<sup>6</sup> The method would be quite satisfactory were it not for the inclusion of enhanced land values, or of public grants and construction, and illogical allowance for going value and other intangibles.

If deduction for depreciation is made from cost new, then clearly it will not matter what items are included in the inventory. If there is junk in the primary appraisal, it will be taken out again through the depreciation allowance. The val-

<sup>6</sup>One interpretation of value as used by the courts might be the amount that the individual units of the property sold separately would bring on a free competitive market. This would be not the value of the property as a going business, but as dismembered and sold in parts at fair market prices. No such valuation could be made practically, for there is no market through which prices for the various articles could be determined.

uation can not be padded. If in a street railway appraisal an old horse car is entered at \$5,000 the depreciation deduction may be \$4,500, thus leaving only \$500 as the net reproduction cost—such value as the car may have for service or as junk. This deduction constitutes primarily a safeguard against padded appraisals. Otherwise it would be exceedingly difficult to prevent the inclusion of property which is not capable of any appreciable service.

*Gross installation cost.* This represents an appraisal at prices actually paid when the units of the existing property were acquired. It is the actual cost that is usually referred to when compared with reproduction cost. The term actual cost is easily thought of as sacrifice; installation cost is used as a more precise designation.

This method would doubtless result in a lower valuation than would the method of gross reproduction cost; and it would automatically eliminate most of the items that represent public expenditures, especially paving and excavation. Land given to the company would be included in the inventory but would be appraised at zero prices. Money grants could not well be traced to individual property units, though they could be deducted from the gross valuation. The prices determining installation cost would probably be as available as those for reproduction cost. The facts would often be shown by the accounts, as for example, the prices paid for land, and to this extent all hypothetical elements would be eliminated from the appraisal. If the facts are not shown by the accounts, the market prices of the different units shown by the inventory could usually be determined as readily for the time of installation as for the time of the valuation. For the sake of practical procedure, average prices for a ten-year or fifteen-year period might well be used. The objection to gross installation cost is the same as that made to gross reproduction cost—no provision would be made for the physical state of the property.

*Net installation cost.* If from gross installation cost we make a deduction for accrued depreciation, we arrive at the fourth appraisal concept, net installation cost. To the writer, this appears to be the most desirable method of valuation and the one that may be justly applied to all classes of existing investment. From the public standpoint, if we wish really to control the return on investment, it would not capitalize per-



manently against the public the present high prices and would require a return only in proportion to the serviceableness of the existing property. And it would conform most closely to the basis of valuation that would be desirable for the future.

From the standpoint of the investors, net installation cost would furnish substantially the valuation on which a return was expected. If there had been proper accounting in the past, this method would give an amount equal to the sum of the property accounts shown by the books less the depreciation shown by the reserve. As stated earlier, ideally the most satisfactory standard would be the direct sacrifice of investors—money put into the business through the issue of securities plus reinvested earnings; but the accounts could not be trusted to give the correct results. However, with proper accounting throughout, the sum of the investors' accounts would be equal to the sum of the property less the depreciation reserve. The property accounts would show the installation cost of the property in service. This is an accounting ideal firmly established. The depreciation reserve would provide for the physical state of the property, including the full amounts charged to operating expenses because of wear and tear, obsolescence, and inadequacy of property. In the absence, therefore, of trustworthy accounts, appraisal at net installation cost gives the closest practical approximation to the direct sacrifice of the investors.<sup>7</sup>

To repeat, the method would not capitalize present high prices; still it would give a valuation on which the investors might reasonably have expected a return. The method involves allowance for actual organization expenses and other intangible items that are not chargeable to depreciation. If it proved impossible to determine these amounts from the records, reasonable percentage should be used. But the method does not include going value either in the sense of accumulated deficiency in return or

<sup>7</sup> In ideal accounting, the original installation cost would have been charged to the property accounts; subsequently the cost of all units installed would likewise have been charged to the property accounts; accruing depreciation would have been included among operating expenses and credited to a reserve; then, when any unit was retired, it would have been credited to the property accounts at original installation cost and charged to the depreciation reserve. The net valuation shown at any time would have been the sum of the property accounts less the total accrued depreciation as stated by the reserve. This amount, then, ideally would be equal to the net installation cost here considered, and this would be equal to the direct sacrifice of the investors.

as special consideration for a connected business. Deficiency in return is a part of the total net sacrifice method, and should not be coupled with an appraisal idea. When a valuation has been made, a connected business is assumed, and no special going value item therefore appears that can be included in the appraisal. Except for reasonable intangibles, the method assumes appraisal of only physical property in service. This, of course, would include provision for working capital.

#### IV

It seems worth while to consider somewhat further the matter of depreciation. As already pointed out, this comes up in connection with the appraisal and not the investors' sacrifice concepts. Although in discussion this distinction is often not clear, obviously, if we wish to determine the amount of money put into the business through the issue of securities, or this amount plus the reinvested earnings, or the total net sacrifice of investors, taking into account excess or deficiency of return, the sum that we find is not logically subject to depreciation. If, however, we make an appraisal, we may then make an allowance in the valuation because of the physical condition of the property. And yet the question whether or not depreciation should be deducted from the primary valuation in an appraisal may very well be decided on the ground of sacrifice. The deduction of depreciation is not necessarily made; whether it should be made depends upon the reasonableness. The chief point to be considered is the fair expectation of the investors. We may assume that they expected a fair return on their direct sacrifice and we may raise the question whether they obtained such return. If not, possibly a rough adjustment for the future might well be made by permitting a return on the gross amount of the appraisal.

We face here a question of fact which is in need of extensive public investigation. At present we can only guess at what the facts have been. We know that fortunes have been made through public utility operations and that there have been also many losses. What has been the prevailing rate of return?<sup>8</sup>

<sup>8</sup> In this discussion of depreciation, the writer has in mind installation cost, but the views expressed may be applied also to reproduction cost. If the latter were to be adopted, the higher prices used might well be considered as a rough general offset against any past general deficiency in return, so that depreciation might well be deducted without further question.

If investigation should show that returns to investors have been fairly reasonable, common sense would dictate that depreciation should be deducted from cost new. And the benefit of a doubt should be cast in favor of deduction because of two facts: first, the companies have for the most part been free in the past to make all the profits that they could; and, second, if the deduction is not made it will be difficult to prevent padding of the appraisal. These facts might possibly justify deduction even if the rate of return should prove to have been lower than what the investors might reasonably have expected. The question is one of public policy.

In any event, however, a decision should be reached. If depreciation deductions are to be made, the practice should be made fixed; it should not be varied according to the experience of the individual company, as to whether it had obtained a reasonable return or whether it had definitely provided for depreciation in operating expenses. We may concede that the policy adopted should be based on the facts concerning past returns, but if we wish to establish a definite method of regulation, we must adopt simple rules which may be applied in the same way to all cases. If, in making a valuation, the special circumstances of each case were considered, dispute over facts would result because of untrustworthy and incomplete records; the machinery of regulation would become clogged, and the purpose of regulation would be largely defeated. Practical administration demands clear, simple, and uniform rules.

Suppose we were to make deductions for depreciation only when it seemed justified by past profits. We should immediately be faced with the logical difficulty that the deduction would be a question of investors' sacrifice and not of physical appraisal of property. When considering very profitable enterprises, where should we stop with the deduction? Should we subtract from the primary valuation all past excessive profits? Or should we follow a physical rule and in any case make a deduction only to the extent that the past profits permitted? It should be clear that depreciation is a function of the physical state of the property and not of past profits. A combination of the two is bound to lead to absurd individual results.

In the case of past unprofitable concerns, we might make no deductions for depreciation and so make good past losses. But

if we proceed with individual cases, recognizing the special circumstances of past return in each case, then why in making good past losses should we stop merely at the point of not making a deduction for depreciation? In a particular case, the amount of physical depreciation may be but a small part of the total past losses of the enterprise. Unless we undertake to make good all the individual losses, why vary from the general rule to the extent of the depreciation that might be involved? But if we attempt really to include all past losses in the valuation and to deduct all past excessive profits, we come to the total net sacrifice basis of valuation and strike the legal and practical difficulties that the method involves.

We should strike serious difficulties also if we were to attempt to base the deduction from the gross appraisal upon whether in the past a company had included among operating expenses provision for depreciation and had set up a depreciation reserve. Such provision may have been a matter of particular ability on account of profitability, which, as already argued, should not be considered in the individual case; or more likely it was a chance procedure. Few companies have been accustomed to provide regularly for depreciation whether able to or not, so that the practice of a certain company would be too accidental a factor upon which to base deductions.

For the purpose of illustration, we may assume two properties of essentially the same character and with a like history of operation and construction, except that in one case regular charges had been made to operating expenses for depreciation and in the other not. If we were to make a property appraisal for each, would it seem reasonable to make a deduction for depreciation in the first case, but to allow the full cost new in the second?

What such procedure would amount to is that property acquired through operating charges would be excluded from the valuation, while if actually charged to the property accounts it would be included. It would be taking appearance for substance, placing a reliance upon past accounting which is not justified by fact. In the one case the property would be covered technically in the accounts by a reserve and in the other by securities or surplus. Is this not too accidental a matter to serve as a desirable basis of valuation?

If we made deductions for depreciation throughout, we should

be treating all companies alike, neither penalizing past excellent practice nor granting a bonus for past negligence; we should simply proceed as if all companies had followed proper accounting methods. A company that has actually made full depreciation charges, has obviously accumulated full depreciation funds, which either have been put into new operating property or have been turned into outside investments. If the former, then clearly they have caused a corresponding addition to the gross appraisal from which the deduction is to be made, so that the company's capital has been fully maintained. If the funds have been put into outside investments, then they will bring corresponding outside income, and again the company will not suffer on account of the depreciation deduction.<sup>9</sup> If there has been proper accounting throughout, the net replacement cost shown by the appraisal, plus any outside investment of depreciation funds, would equal the net direct sacrifice by investors. This, presumably, is the ideal figure on which a return should be based.

Suppose a company has not made depreciation charges. Then either a book surplus has been accumulated or larger profits have been paid out to investors. If the first, a book surplus is taking the place of depreciation reserve, which is merely a matter of terminology and accounting procedure, not of fundamental fact. Undoubtedly many companies have accumulated surpluses which were not really intended to be such, but rather were considered as providing for depreciation and contingencies affecting the physical condition of the property. Few balance sheet surpluses are intended to be shown as surplus in fact. If a company has a bogus surplus, why should it receive treatment different from what it would receive if more truthfully it presented a depreciation reserve?

But suppose that the extra profits shown through the failure to include depreciation charges in operating expenses, have been paid out as additional dividends to stockholders. Then the investors have obtained a greater return, and there is no reason why the appraisal should not be treated in the same way as if depreciation charges had been made. For if a deduction is not

<sup>9</sup>Special depreciation fund investments are usually not included in the valuation, nor is the income considered in the calculation of return. The investment, however, might well be included in the valuation; then the income should be included in the operating revenue. The net result, therefore, would be the same as in the current practice.

made, clearly a premium is paid for past low standards of management, and investors who have already obtained the greater actual income will therefore receive also the greater return for the future. Does that seem reasonable?<sup>10</sup>

In conclusion, it should be urged again that a clear single standard of valuation be adopted. If an appraisal method is selected, then either no deduction should be made for depreciation or it should be made throughout, whatever the history of the company as to returns or operating and accounting practice. If we wish really to control the return on investment, we must adopt simple, clear, workable methods. We should be just to investors, but, as urged repeatedly in this paper, we should not defeat the social purpose of regulation by too narrow regard for individual justice. All we can reasonably expect, if we wish to clear up the present confused situation, is to provide substantial justice in respect to past investment. As to the future, we should formulate clear and definite rules, so that investors may know exactly the terms at which they put their capital to the public service, and so that we may regulate the whole matter of return by means of accounting control.

JOHN BAUER.

*Princeton University.*

<sup>10</sup> A company may have charged the cost of all replacements to operating expenses instead of depreciation, and have thus followed really an irreproachable accounting method. A property may, of course, be fully maintained as well by the one method as the other. But even so, if the depreciation reserve is deducted from the primary valuation in the one case, there is no reason why a similar deduction for the physical state of the property should not be made in the other, unless service rates had actually been lower because of the particular method followed. But it can not be seriously claimed that any past accounting methods have had any clear effect upon rates charged to the public.